



# Elastomeric Ultrasint™ TPU01

for HP Multi Jet Fusion (MJF) Printers

Technical Data Sheet for Ultrasint™ TPU01

## General Information

### Components

Thermoplastic polyurethane elastomeric powder for HP Multi Jet Fusion printers.

### Product Description

Ultrasint™ TPU01 is a multi-purpose elastomer material for application in HP Multi Jet Fusion printers. Parts produced with this material offer a balanced property profile with good flexibility, shock absorption and the possibility to print very fine structures with a high level of detail. In addition, the material is easy to print, and has good UV and water resistance. Ultrasint™ TPU01 is only processable in HP Multi Jet Fusion printers.

Typical applications are:

- Sports & Leisure
- Footwear
- Automotive & Transportation
- Jigs & Fixtures
- Robotics
- Medical Components
- Bellows
- Ducting
- Harnesses & Fasteners
- Isolation Dampers

### For your information

Ultrasint™ TPU01 comes in white color, though the fusing agents make printed parts black. Chemical properties (e.g. resistance against particular substances) and tolerance for solvents are available upon request. Generally, these properties correspond to publicly available data on polyurethanes.

### Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

The safety data given in this publication is for information purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). The relevant MSDS can be obtained upon request from your supplier or you may contact GoProto directly at [quotes@GoProto.com](mailto:quotes@GoProto.com).

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| General Properties                      | Test Method          | Typical Values |
|-----------------------------------------|----------------------|----------------|
| Bulk Density / g/cm <sup>3</sup>        | DIN EN ISO 60        | 0.5            |
| Printed Part Density / g/m <sup>3</sup> | DIN EN ISO 1183-1    | 1.1            |
| Mean particle size d50 / μm             | ISO 13320            | 70-90          |
| Glass transition Temperature / °C       | ISO 11357 (20 K/min) | - 48           |
| Melting Temperature / °C                | ISO 11357 (20 K/min) | 120-150        |

| Thermal Properties  | Test Method    | Typical Values <sup>1</sup><br>X-Direction | Typical Values <sup>1</sup><br>Z-Direction |
|---------------------|----------------|--------------------------------------------|--------------------------------------------|
| UL Flammability     | UL 94          | HB (1.6-4.2 mm)                            | HB (1.6-4.2 mm)                            |
| Vicat/A (10 N) / °C | DIN EN ISO 306 | 84                                         | 96                                         |

| Mechanical Properties                                       | Test Method      | Typical Values <sup>1</sup><br>X-Direction | Typical Values <sup>1</sup><br>Z-Direction |
|-------------------------------------------------------------|------------------|--------------------------------------------|--------------------------------------------|
| Hardness Shore A                                            | DIN ISO 7619-1   | 88                                         | 88                                         |
| Tensile Strength / MPa                                      | DIN 53504, S2    | 9                                          | 7                                          |
| Tensile Elongation at break / %                             | DIN 53504, S2    | 220                                        | 120                                        |
| Tensile Modulus / MPa                                       | ISO 527-2, 1A    | 75                                         | 85                                         |
| Flexural Modulus / MPa                                      | DIN EN ISO 178   | 75                                         | 75                                         |
| Tear resistance (propagation, Trouser) / kN/m               | DIN ISO 34-1, A  | 20                                         | 16                                         |
| Tear resistance (initiation, Graves) / kN/m                 | DIN ISO 34-1, B  | 36                                         | 32                                         |
| Compression Set B (23°C, 72h) / %                           | DIN ISO 815-1    | 20                                         | 20                                         |
| Rebound resilience / %                                      | DIN 53512        | 63                                         | 63                                         |
| Abrasion resistance / mm <sup>3</sup>                       | DIN ISO 4649     | 140                                        | 100                                        |
| Charpy Impact Strength (notched, 23°C) / kJ/m <sup>2</sup>  | DIN EN ISO 179-1 | Partial break                              | No break                                   |
| Charpy Impact Strength (notched, -10°C) / kJ/m <sup>2</sup> | DIN EN ISO 179-1 | 21                                         | 29                                         |
| Fatigue behavior (Rossflex, 100k cycles, 23°C)              | ASTM D1052       | No cut growth                              |                                            |
| Fatigue behavior (Rossflex, 100k cycles, -10°C)             | ASTM D1052       | No cut growth                              |                                            |



1) Measured after conditioning 3 days at 23°C and 50% r.h.

All values represent the stable part performance obtained when using the recommended refresh rate of 20% fresh + 80% recycled powder.